REMARKS

In response to an Official Action dated October 20, 2005, Applicant respectfully submits the following remarks. This application contains claims 1-57, all of which were rejected in the present Official Action. Reconsideration is respectfully requested in view of the remarks that follow.

Claims 1, 2, 6, 9-21, 25, 28-40 and 47-57 were rejected under 35 U.S.C. 103(a) over Ivanoff et al. (U.S. Patent 5,517,622) in view of Schmuck et al. (U.S. Patent 5,946,686). Applicant respectfully traverses this rejection.

Claim 1 recites a method for managing data storage in a cluster of computing nodes. The nodes have shared access to data storage using a parallel file system. One of the nodes in the cluster is chosen to serve as the session manager node, while a second node is selected to serve as a session node for a data management (DM) application that runs on one or more of the volumes of data storage using the parallel file system. A session of the DM application is created by sending a message from the session node to the session manager node. This message causes the session manager node to inform the other nodes in the cluster about the session. As a result, the session node receives events from the nodes in the cluster for processing by the DM application when the nodes access the one or more volumes of data storage using the parallel file system.

-2-

Ivanoff describes a method and apparatus for pacing communications in a distributed, heterogeneous network. Ivanoff's method uses communication managers, which reside in local processors and are responsible for interfacing local end-users with the remainder of the network (abstract). In rejecting the claims in the present patent application, the Examiner made reference specifically to Ivanoff's Fig. 6, which illustrates the functions of the communication manager in terms of a network protocol stack (col. 11, lines 54-59). The CM interacts with the session layer of the protocol stack (col. 37, lines 22-36, and col. 38, line 60 - col. 39, line 42). One aspect of management services performed by the CM includes event management (col. 66, line 18 - col. 67, line 57).

Schmuck describes a computer system having a shared disk file system running on multiple computers. Each computer has its own instance of an operating system and is coupled for parallel data access to files residing on network-attached shared disks, using a parallel file system (abstract).

In the present Official Action, the Examiner acknowledged that Ivanoff does not disclose a parallel file system, as defined by claim 1 ("a physical file system... that enables all the nodes in the cluster to access the same file data concurrently" - page 3, last paragraph in the Official Action). In fact, Ivanoff does not disclose any sort of file

system. As explained above, he describes a communication

system. In Ivanoff's very lengthy specification, he makes no

mention whatsoever of file systems or management of data

storage in a file system, which is the subject of the claims

in the present patent application. Thus, Ivanoff cannot be

considered analogous art to the subject matter of claim 1.

Furthermore, because Ivanoff does not relate to file

systems, a person of ordinary skill in the art would have had

no motivation to combine the teachings of Ivanoff with those

of Schmuck. The Examiner maintained that such motivation

would have stemmed from Ivanoff's mention of cross-system

access to user applications (col. 3, lines 3-5, cited by the

Examiner). The systems in question in Ivanoff, however, are

communication networks, and the applications in question are

software functions (see col. 2, lines 24-33). It would not

have been possible to use Schmuck's shared disk file system in

order provide any sort of "cross-system access" between the

communication networks in Ivanoff's system.

Even if it were conceded that Ivanoff was analogous

art to the claimed invention and could be combined with

Schmuck, the Examiner has still failed to demonstrate that all

the elements of claim 1 are disclosed in these references.

MPEP 2143.03 states:

> To establish prima facie
> obviousness of a claimed invention,
> all the claim limitations must be
> taught or suggested by the prior

art. *In re Royka*, 490 F.2d 981, 180
USPQ 580 (CCPA 1974). "All words in
a claim must be considered in
judging the patentability of that
claim against the prior art." *In re
Wilson*, 424 F.2d 1382,1385,165 USPQ
494,496 (CCPA 1970).

In his analysis of claim 1 (page 3 in the Official
Action), the Examiner has not pointed out any coherent
relationship between the limitations of claim 1 and elements
of the cited art.

To illustrate this point, the following chart shows
all the elements and limitations of claim 1 along with the
corresponding elements cited by the Examiner in Ivanoff, which
purportedly teach these elements. Applicant's comments, where
appropriate, are italicized in [*brackets*]. Applicant
respectfully points out that a table of this sort has been
presented in two previous responses to Official Actions in
this case, but the Examiner has never yet responded to the
points raised in the table.

TABLE I - CLAIM CHART FOR CLAIM 1

Claim 1	Examiner citations in Ivanoff
In a cluster of computing nodes having shared access to one or more volumes of data storage using a parallel file system, a method for managing the data storage	Col. 103, line 10 - col. 104, line 47. [*The cited passage includes method claims 4-10, which are all drawn to "a method of pacing data communications," rather than "a method for managing the data storage."*]

Claim 1	Examiner citations in Ivanoff
selecting a first one of the nodes to serve as a session manager node	Fig. 6, see CM/SESSION
selecting a second one of the nodes to serve as a session node	Fig. 6, CM/SESSION (of adjacent communication manager) and col. 3, lines 40-45: "For each distribution unit, the communication manager determines an adjacent communication manager..."
for a data management application to run on the one or more volumes of data storage	MIB [It is not clear whether the Examiner meant MIB to represent a "data management application" or "one or more volumes of data storage." In fact, a MIB is a database, not an application or a storage volume.]
using the parallel file system	?? [There is no mention of any file system in the cited passage (3:40-45), or anywhere else in Ivanoff.]
creating a session of the data management application on the session node	See 3:40-45. [Not clear what element in Ivanoff corresponds to the "data management application." Even if it is the MIB, Ivanoff makes no mention of "creating a session" of the MIB.]

Claim 1	Examiner citations in Ivanoff
by sending a message from the session node to the session manager node	Two-way communication link in Fig. 6 between CM/SESSION, MIB and CM/NETWORK... 3:40-45. [*As shown in Fig. 6, communication between CM/SESSION, CM/NETWORK and MIB is all within the same node. No message of any kind is described in the cited passage.*]
causing the session manager node to distribute information regarding the session among the nodes in the cluster	?? [*There is no mention in Ivanoff of how a message sent to CM/SESSION (identified above as the session manager node) might cause CM/SESSION to distribute information regarding the session to other nodes.*]
responsive to the information distributed by the session manager node, receiving events at the session node from the nodes in the cluster	See 3:40-45. [*No mention in he cited passage of events, and events described elsewhere by Ivanoff are not related in any way to data storage access, unlike the events recited in the claim.*]
when the nodes access the one or more volumes of data storage using the parallel file system for processing by the data management application	3:40-50 - "The distribution units are then transmitted from the origin communications manager to the adjacent communications manager..." [*There is no suggestion in Ivanoff of receiving events when data storage (MIB?) is accessed.*]

To summarize, Ivanoff teaches almost none of the limitations of claim 1. Although Schmuck may disclose a parallel file

system, he does not teach or suggest the other limitations of claim 1 that are absent from Ivanoff.

Thus, for each of the different reasons stated above, Applicant respectfully submits that the Examiner has failed to make a *prima facie* case of obviousness against claim 1. Claim 1 is therefore believed to be patentable over the cited art. In view of the patentability of claim 1, claims 2, 6 and 9-16, which depend from claim 1, are also believed to be patentable.

Notwithstanding the patentability of claim 1, the dependent claims in this application are also believed to recited independently-patentable subject matter. In the interest of brevity, however, Applicant will refrain from arguing the patentability of each of the dependent claims at present.

Independent claims 20 and 39 respectively recite computing apparatus and a computer software product, which operate on principles similar to the method of claim 1. Therefore, for the reasons stated above, amended claims 20 and 39 are likewise believed to be patentable over the cited references. In view of the patentability of these independent claims, dependent claims 21, 25, 28-35, 40 and 47-54 are believed to be patentable, as well.

Independent claim 17 recites a method for managing data storage that includes initiating sessions of a parallel data management application on a plurality of nodes in a

cluster. A data management event is generated when a request is submitted to a parallel file system on one (or more) of the nodes to perform a file operation on a file in a volume of data storage. The event is handled by an instance of the data management application running on the node.

Claim 17 was rejected over Ivanoff in view of Schmuck on the same rationale as claim 1. As noted above, however, Ivanoff does not relate in any substantive manner to storage volumes, file systems, or data management applications involving these elements. Thus, Ivanoff cannot be considered analogous art to the invention of claim 17, and a person of ordinary skill in the art would have had no motivation to combine Ivanoff with Schmuck. Furthermore, as shown in the claim chart above, the cited references do not teach or suggest generating a data management event responsive to a request to perform a file operation on a file, as recited in claim 17.

In addition, claim 17 refers to sessions of a parallel data management application on a plurality of nodes in a cluster. This limitation does not appear in claim 1, but the Examiner did not relate to the limitation at all in his rejection of claim 17. In fact, the cited art makes no reference to or suggestion of this sort of parallel data management application.

Therefore, for each of the reasons stated above, Applicant respectfully submits that the Examiner has failed to

make a *prima facie* case of obviousness against claim 17. This
claim is thus believed to be patentable over the cited art.
In view of the patentability of claim 17, claims 18 and 19,
which depend from claim 17, are believed to be patentable, as
well.

Independent claims 36 and 55 respectively recite
computing apparatus and a computer software product, which
operate on principles similar to the method of claim 17.
Therefore, for the reasons stated above regarding claim 17,
claims 36 and 55 are likewise believed to be patentable over
the cited references. In view of the patentability of these
independent claims, dependent claims 37, 38, 56 and 57 are
believed to be patentable, as well.

Claims 3, 4, 22, 23, 41 and 42 were rejected under
35 U.S.C. 103(a) over Ivanoff in view of Schmuck and further
in view of Stevenson et al. (U.S. Patent 5,023,873).
Applicant respectfully traverses this rejection. In view of
the patentability of independent claims 1, 20 and 39, from
which these claims depend, Applicant believes claims 3, 4, 22,
23, 41 and 42 to be patentable, as well.

Furthermore, notwithstanding the patentability of
the independent claims, dependent claims 3, 4, 22, 23, 41 and
42 recite subject matter that is independently-patentable over
the cited art. Claim 3, for example, recites that information
regarding a session of a data management application is stored
at both the session node and at the session manager node.

Following a failure at the session node, the stored
information is received from the session manager node in order
to recover the session.

The Examiner acknowledged that this limitation is
absent from Ivanoff and Schmuck, but maintained that Stevenson
discloses "obtaining complete line connection configuration
(session) from the link connection configuration manager in
and the backup components to use if recovery is necessary (4:
10-20)." Stevenson describes a communication link manager for
problem determination and recovery of a failing resource on a
communication link segment in a data communication network
(abstract). The communication link manager in the passage
cited by the Examiner (and indeed, Stevenson's entire system)
has nothing whatsoever to do with data storage or file
systems. The fact that Stevenson might describe a mechanism
for recovering from communication link failures could not
possibly have led a person of ordinary skill in the art in the
field of data storage and file systems to the method of data
management session information storage and recovery that is
recited in claim 3.

Similar arguments may be made with regard to the
other claims in this group, but they are omitted here for the
sake of brevity.

Claims 5, 7, 8, 24, 26, 27, 43, 45 and 46 were
rejected under 35 U.S.C. 103(a) over Ivanoff in view of
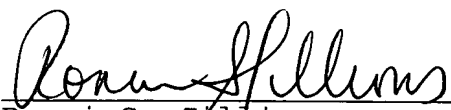Schmuck and further in view of Dugan et al. (U.S. Patent

-11-

6,363,411). Applicant respectfully traverses this rejection. In view of the patentability of independent claims 1, 20 and 39, from which these claims depend, Applicant believes claims 5, 7, 8, 24, 26, 27, 43, 45 and 46 to be patentable, as well.

Furthermore, notwithstanding the patentability of the independent claims, dependent claims 5, 7, 8, 24, 26, 27, 43, 45 and 46 recite subject matter that is independently-patentable over the cited art. In the interest of brevity, however, Applicant will refrain from arguing the patentability of each of the dependent claims at present.

Applicant believes the remarks presented hereinabove to be fully responsive to all of the grounds of rejection raised by the Examiner. In view of these remarks, Applicant respectfully submits that all of the claims in the present application are in order for allowance. Notice to this effect is hereby requested.

Respectfully submitted,

BROWDY AND NEIMARK, P.L.L.C.
Attorneys for Applicant

By   _____
Ronni S. Jillions
Registration No. 31,979

RSJ:ma
Telephone No.: (202) 628-5197
Facsimile No.: (202) 737-3528
G:\BN\C\colb\Loy1\pto\Amendment 10Jan06.doc